

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

APPLICANT: YUET-YING YU, ET AL. ) Group Art Unit: 2827  
SERIAL NO. 09/872,882 )  
FILED: June 1, 2001 ) Examiner: Norris, J.  
TITLE: FLEXIBLE CONDUCTIVE SHEET )  
 ) Confirmation No.: 3167

BOX NON-FEE AMENDMENT  
Commissioner For Patents  
Washington, D.C. 20231

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AMENDMENT

In response to the Office Action mailed September 25, 2002, please amend the application as follows:

In the Abstract:

Please accept the following specification paragraph in re-written "clean form". This paragraph is the "Abstract" paragraph on page 21 of the specification.

-- A flexible conductive sheet includes a polyimide base layer and a metallic layer formed in a grid pattern upon the base layer. Preferably, there are a plurality of metallic layers, formed upon the base layer, with at least one of the plurality of metallic layers formed in the grid pattern. The metallic layers further include an adhesion layer, the adhesion layer further comprising a chromium layer, applied upon the polyimide base layer, and a copper layer, formed upon the chromium layer. Finally, a nickel layer is formed upon the adhesion layer, and a gold layer is formed upon the nickel layer. --

In the Claims:

Please cancel, without prejudice, originally submitted claims 24-46.

Please amend Claim 3 as follows in re-written "clean" format:

-- 3. (Amended) The flexible sheet of claim 2, wherein said plurality of metallic layers further comprise:

an adhesion layer, said adhesion layer further comprising a chromium layer, applied upon said polyimide base layer, and a copper layer, formed upon said chromium layer; a nickel layer, formed upon said adhesion layer; and a gold layer, formed upon said nickel layer.--

REMARKS

Reconsideration of the instant application is respectfully requested. The present amendment is responsive to the Office Action of September 25, 2002, in which claims 1-46 were originally pending. In response to an oral restriction requirement on September 23, 2002, between group I (claims 1-23) and group II (claims 24-46), claims 1-23 were elected without traverse for further prosecution on the merits. Of those, claims 3 and 6-23 have been rejected under 35 U.S.C. §112, second paragraph as being indefinite. With regard to the art of record, each of claims 1-23 have been rejected under 35 U.S.C. §103(a), as being unpatentable over U.S. Patent 5,900,316 to Yu, et al. (Yu), in view of U.S. Patent 5,633,479 to Hirano. For the following reasons, however, it is respectfully submitted that the application is now in condition for allowance.

As an initial matter, the "Abstract" section of the specification has been amended in order to remove phraseology containing the term "disclosure", and it is respectfully requested that the objection thereto in that regard be withdrawn. In addition, the non-elected claims 24-46 have been cancelled; however, the Applicants reserve the right to file a divisional application for any non-elected subject matter.

With regard to the Examiner's rejections of claims 3 and 6-23 under 35 U.S.C. §112, second paragraph, claim 3 has been amended to more clearly indicate that (as correctly indicated by the Examiner) the adhesion layer includes the copper and chromium layers, as is particularly described on page 10, lines 2-9 of the specification. Specifically, the presentation of the paragraph indentations in claim 3 have been amended so as not to potentially confuse the recited nickel and gold layers as part of the adhesion layer. However, it will be appreciated that the substantive subject matter of claim 3 and those claims dependent therefrom has not been changed. The Applicants further point out that claims 20-23 depend from claim 1, not from claim 3. Thus, it is presumed that the original §112 rejections actually apply only to claims 3 and 6-19, since there are no additional grounds for the §112 rejections given in the present action as to claims 20-23.

With regard to the §103 rejections on the prior art, the Applicants respectfully traverse the same and request that they be withdrawn for the reasons that: (1) one skilled in the art would not be motivated to combine the teachings of Yu and Hirano; (2) there is no suggestion in either reference for doing so; and (3) even if there were some motivation to combine the two references, an inoperative combination would result (i.e., a "flexible" wiring structure that would likely result in short circuiting and other structural problems for a high-speed signal propagation application).

First, it is noted that the Yu and Hirano references are generally directed to different fields of endeavor. In the case of Yu, the flexible conductive sheet relates to integrated circuit testing apparatus and methods, particularly with regard to the physical probing of substrates (col. 1, lines 8-14). The present disclosure, directed generally to the same field of endeavor as Yu, operates to further enhance the flexibility of such a testing conductive sheet. On the other hand, the invention disclosed by Hirano relates to a multilayer wiring structure of a multilayer wiring board (such as for a multi-chip module) on which a plurality of semiconductor elements may be mounted (col. 1, lines 5-11). Furthermore, each reference is geared to solving separate, unrelated problems. In the case of Yu, there is expressed a need for reliable probe

testing of I/O pads of semiconductor substrates (see col. 1, line 15, through col. 2, line 55). In the case of Hirano, the patentee has sought to address line inductance and capacitance issues associated with multilayer conductor patterns on wiring boards (see col. 1, line 12, through col. 3, line 6).

Moreover, one skilled in the art would not be motivated to physically combine a testing structure with an operational structure (such as a wiring structure), even if the testing structure (the conductive sheet) could somehow be used to test the operational structure. There is no explicit or implicit mention in Yu that the conductive sheet structure has any applicability to a multilevel circuit board wiring apparatus. Conversely, there is no explicit or implicit mention in Hirano that the mesh conductor patterns in the power and ground wiring layers of a wiring board may somehow be used in conjunction with a testing probe or flexible sheet.

Notwithstanding the Examiner's observation that Yu mentions the flexible sheet may have other applications, such as an electrical field shield for containing RF interference, there is no such similar mention with regard to the mesh conductor patterns in the Hirano figures that are presented therein as prior art.

Finally, even if there were some motivation to combine the Yu and Hirano references, an inoperative combination would likely result therefrom. If a flexible sheet material, as taught by Yu, were to be used in forming either a grid-like power supply wiring layer or a ground wiring layer for a wiring board, as taught by Hirano, an inoperative or defective device would be the likely result. Those skilled in the art will recognize that a multilevel wiring board is an apparatus that integrates closely spaced signal and power wiring levels sandwiched between insulative layers. As such, the electrical isolation of each discrete conductive wiring layer is necessarily maintained in order to prevent shorting and/or malfunction. In contrast, a flexible sheet used for one or more of the conductive layers would likely present problems in this regard. Alternatively, if such a flexible conductive sheet were rigidly and permanently affixed or laminated in conjunction with other insulative and conductive layers, the entire purpose of having the flexible sheet is negated. Accordingly, such a combination would be

ineffective.

For the above stated reasons, it is respectfully submitted that the present application is now in condition for allowance. No new matter has been entered and no additional fees are believed to be required. However, if any fees are due with respect to this Amendment, please charge them to Deposit Account No. 06-1130 maintained by applicants' attorneys.

Respectfully submitted,  
YUET-YING YU, ET AL.

CANTOR COLBURN LLP  
Applicants' Attorneys

By Sean F. Sullivan  
Sean F. Sullivan  
Registration No. 38,328  
Customer No. 29371

Date: December 4, 2002  
Address: 55 Griffin Road South, Bloomfield, CT 06002  
Telephone: (860) 286-2929

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